Questions and Concerns from the West Lake Landfill Community Advisory Group Technical Committee

Comments on the *Scope of Work and Objectives of the Investigation*

1. **Engineering Management Support Inc. (EMSI)**: The Phase 1D investigation is meant to identify the extent of RIM in parts of western and southwestern Operable Unit 1 (OU-1) Area 1. Figure 1 is also titled Proposed Phase 1D Borings in Area 1.

   CAG Question 1: Based on Figure 1, the testing is actually going to take place outside of the previously designated OU-1 Area 1. In fact, it appears most of the testing will take place in OU-2. Has the EPA changed the boundaries of OU-1 Area 1 to include parts of the North Quarry as illustrated in Figure 1? If yes, has the Missouri Department of Natural Resources agreed to the change in boundaries for OU-1 Area 1 as OU-1 and OU-1 operate under different permits? EMSI references the testing during Phase 1D as exclusively within OU-1 throughout the approved Work Plan. Our concern about area delineation is consistent throughout the document.

   EPA Response: EPA has not changed any Operable Unit (OU) boundaries. The final boundaries of the OUs will be determined based upon the extent of RIM encountered at the site following conclusion of the ongoing investigation.

2. **EMSI**: The results will also provide information needed…for a possible isolation barrier within the southern portion of Area 1 or along the southern boundary of Area 1.

   CAG Question 2: Based on maps of isolation barrier alternatives, would it be correct for EMSI to describe the possible isolation barrier as extending into the North Quarry, which is OU-2, not OU-1?

   EPA Response: Results of the previous and current GCPT testing will help determine the most appropriate location for potential placement of an isolation barrier (IB), regardless of any Operable Unit designation, as the intent of the IB would be to physically separate the RIM from the current subsurface smoldering event in the Bridgeton Landfill.

Comments on the *Field Investigation and Sample Collection and Analyses*

3. **EMSI**: #5) Upon completion of each Sonic borehole, a PVC pipe will be installed to maintain the borehole opening and the borehole will be downhole logged for gamma radiation.

   CAG Question 3: Will the PVC decrease the detection of downhole Gamma radiation?

   EPA Response: No. PVC pipe of standard schedule or thickness does not noticeably shield

gamma radiation and is necessary to prevent borehole collapse. Conventional practice for gamma spectrum probes or other geophysical tools (for example: neutron, gamma-density, etc.) can effectively be used to record signatures through PVC.

4. **EMSI**: #6) Based on the results of the GCPT gamma logs…will be used to evaluate whether the radionuclide occurrences are associated with Leached Barium Sulfate Residue (LBSR).

   CAG Question 4: The Atomic Energy Commission (AEC) explicitly details how the radioactive wastes dumped at the West Lake Landfill in 1973 consisted of more radioactive wastes than "Leached Barium Sulfate Residue" in its 1974 decommission report on Latty Avenue.

   EPA Response: The CAG Technical Committee's concern is noted. The radionuclides that EMSI is testing for is in accordance with the radionuclides listed in the 2011 SFS (which refers to the Baseline Risk Assessment) and historical analysis. The samples will also be analyzed for TAL trace metals, plus Sulfate, Carbonate, and Fluoride to provide multiple lines of evidence to delineate and differentiate radiological constituents associated with other solid waste and/or naturally occurring radionuclides.

5. **EMSI**: #6) Samples will be collected from the intervals with the highest gamma readings and/or at the discretion of the site health physicist/engineer/geologist from any intervals where visual inspection identifies potentially anomalous materials.

   CAG Question 5: Clarification here is appreciated. Who is the site health physicist/engineer/geologist and who does this person work for?

   EPA Response: The field work conducted at the West Lake Landfill will be completed by contractors working on behalf of the responsible parties under EPA oversight in the field. Contractors' (prime and subcontractors) individual personnel are identified and documented in the field in their daily field progress sheets, which are also periodically reviewed by agency personnel that perform oversight to ensure adherence with the site health and safety plan.

6. **EMSI**: #6) Preference will be given, to the extent practical, to obtain samples from intervals bounded by the 1971 and 1975 topographic surfaces…

   CAG Question 6: The landfill has been exposed to heavy rains and the elements for more than 40 years. We know there is currently radioactivity in the groundwater as a result of the USGS review, which means it is likely some of the radioactive materials are sinking closer to the groundwater. Several of the maximum gamma levels recorded in the Phase 1A GCPT report are below the 1971 Elevation level in Table 1 of the Phase 1D Investigation Work Plan. It's our concern sampling detailed in this part of the Work Plan

will be missed if EMSI focuses only on the 1971-1975 range as determined by the Surdex Corporation.

EPA Response: The CAG Technical Committee's concern is noted. The preference for obtaining samples in the 1971-1975 interface is only relevant to borings that do not exhibit a significant gamma signature during screening with the GCPT tool or where the gamma scans do not provide a clear lower boundary of potential RIM.

7. **EMSI**: #7) Details 12 radioactive isotopes to be tested.

   CAG Question 7: We recommend additional testing for Radium-223 and Thorium-227. If the EPA cannot amend the Phase 1 Investigation Work Plan to include sampling for the above mentioned radioisotopes, the CAG recommends that EPA Region 7 conduct tests for the listed isotopes in its split samples.

   EPA Response: The CAG Technical Committee's concern is noted. Ra223 and Th227 both have relatively short half-lives, 11 days & 18 days; and EPA wouldn't expect them to be present in the landfill after all this time unless they are being fed from a parent radionuclide from higher up on the decay chain. In that case, they would have the same activity as a parent radionuclide like Ac227 or Pa231 which are included in the EMSI testing protocol. Though split samples are not being collected in this round until the pyrolysis testing is performed, EPA will have a representative onsite throughout the field effort to ensure all samples are representative of field screening findings and collected in accordance with the approved work plan.

Reporting

8. **EMSI**: The progress of field work and laboratory analyses will be reported to EPA on a weekly basis as part of the monthly progress reports for OU-1.

   CAG Question 8: Is the CAG able to obtain the monthly progress reports?

   EPA Response: The CAG may request under the Freedom of Information Act (FOIA) any records related to the Site. The PRPs will prepare a final report that EPA will make available to the public that encompasses all activities performed during the Phase 1D effort. The EPA RPM will also be available at the monthly CAG Technical Committee meetings to provide updates as work progresses.

Miscellaneous Questions and Concerns

9. **CAG Question**: How is EPA Region 7 engaging the State of Missouri as it relates to the ongoing testing for radioactivity, especially tests conducted in OU-2, which is under the State of Missouri's jurisdiction?

EPA Response: EPA routinely coordinates with the Missouri Department of Natural Resources with regard to the ongoing Phase 1D investigation, and MDNR also has representatives periodically on site during fieldwork.

10. **CAG Question**: Who is the U.S. Department of Energy point of contact for the West Lake Landfill?

    EPA Response EPA is coordinating with DOE to identify the appropriate contact.

11. **CAG Question**: Is EPA Region 7 concerned about the sonic core samples providing a pathway for contaminating the groundwater?

    EPA Response: No. The sonic core borings are temporary and boring tool cased as it advances in the borehole, and abandoned in accordance with all state regulatory requirements to prevent creation of any future conduit for contaminant mobility.

12. **CAG Question**: The "step-out" method failed to identify the radioactivity along the proposed isolation barrier as discovered during testing. Figure 1 of the Phase 1D Work Plan appears to show something similar to the "step-out" method and there remains a concern that the current testing, if a "clean line" is found, would not ensure there is no RIM to the south of the proposed "clean line" for the isolation barrier. It's our recommendation that the EPA compel the testing for RIM between the "neck" of the north and south quarries and the proposed "clean line" isolation barrier.

    EPA Response: The CAG Technical Committee's recommendation is noted. The location of the suspected clean line and other locations were decided based on the historical record for RIM placement at OU1, analysis of historical site aerial photographs and physical features identified during and after RIM placement, and identification of historical RIM detections from the prior Phase 1 efforts. Methodology for sampling under the Phase 1D plan allows for "step outs" from any specific location that encounters RIM as far as needed to fill in data gaps. The decision to sample further within the former North Quarry, or not, will be based on the presence/absence of RIM encountered.